

IN THE SPECIFICATION:

Please amend the specification beginning at page 6, line 7 and ending a page 17, line 6, as follows:

The present invention relates to a method for screening DNA encoding proteins having the activity of improving environmental stress tolerance wherein candidate cDNA derived from cDNA library is introduced into host cells, the obtained transformed cells are cultured under the conditions where the host cells cannot substantially grow, the clones grown after culturing are selected, and the candidate cDNA introduced from the selected clones is isolated (~~claim-1~~), a method for screening DNA encoding proteins having the activity of improving environmental stress tolerance wherein candidate cDNA derived from cDNA library is introduced into host cells, the obtained transformed cells are cultured under conditions where the host cells cannot substantially grow, the clones grown after the culturing are selected, candidate cDNA is isolated from the selected clones, the isolated candidate cDNA is introduced into the isolated cDNA, the mutant cDNA is introduced into host cells, and the process of selecting is repeated one or more under stringent conditions of selecting mutant cDNA than the selecting condition (~~claim 2~~), the method for screening according to ~~any one of claims (1) or (2)~~, wherein the environmental stress is one or more of chemical substance stress, high temperature stress, low temperature stress, freezing stress, drought stress, ozone stress, ultraviolet stress, radiation stress, or osmotic pressure stress (~~claim-3~~), the method for screening according to ~~claim-3~~, wherein the chemical substance stress is salt stress (~~claim-4~~), the method for screening according to any one of ~~claims (1) to (4)~~, wherein the host cell is a coliform (~~claim-5~~), the method for screening according to ~~claim-5~~, wherein the coliform is SOLR strain (~~claim 6~~), the method for screening according to any one of ~~claims (1) to (6)~~, wherein an environmental condition where host cells cannot substantially grow is 350mM or more of salt concentration (~~claim-7~~).

The present invention also relates to DNA encoding proteins having the activity of improving environmental stress tolerance wherein the DNA is obtained according to any one of ~~claims (1) to (7)~~ (~~claim 8~~), DNA encoding proteins having the activity of improving environmental stress

tolerance according to *claim* (8), wherein the environmental stress is one or more of stresses selected from chemical substance stress, high temperature stress, low temperature stress, freezing stress, drought stress, ozone stress, ultraviolet stress, radiation stress, or osmotic pressure stress (*claim*-9), DNA encoding proteins having the activity of improving the environmental stress tolerance according to *claim*-9, wherein the chemical substance stress is salt stress (*claim*-10), DNA encoding proteins having the activity of improving the environmental stress tolerance according to any one of *claims* (8) to (10), wherein the proteins having the activity of improving the environmental stress tolerance are derived from plants (*claim*-11), DNA encoding proteins having the activity of improving the environmental stress tolerance according to *claim* (11), wherein the plant is *Bruguiera sexangla*, *Avicennia marina*, *Sueada japonica*, *Salsola komarovii*, or *Mesembryanthemum crystallinum* (*claim* 12), DNA encoding proteins according to any one of the following (a) to (c): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 2, (b) a protein comprising a sequence of amino acids having 70% or more of homology with the sequence of amino acids shown in Seq. ID No. 2, and having the activity of tolerance at least against salt stress, (c) a protein having a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 2, and having the activity of improving tolerance at least against salt stress (*claim* 13), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 1, or its complementary sequence (*claim*-14), DNA hybridized with the DNA according to *claim* (14) under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (*claim*-15), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 4, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 4, and having the activity of improving tolerance at least against salt stress (*claim* 16), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 3 or its complementary sequence (*claim*-17), DNA hybridized with the DNA according to *claim*-17 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (*claim*-18), DNA encoding proteins

according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 6, (b) a protein comprising the sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 6, and having the activity of improving tolerance at least against salt stress (claim 19), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 5 or its complementary sequence (claim-20), DNA hybridized with the DNA according to claim-20 under stringent conditions, and encoding proteins comprising the activity of improving tolerance at least against salt stress (claim-21), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 8, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 8, and having the activity of improving tolerance at least against salt stress (claim-22), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 7 or its complementary sequence (claim 23), DNA hybridized with the DNA according to Claim (23) under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim 24), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising a sequence of amino acids shown in Seq. ID No. 10, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 10, and having the activity of improving tolerance at least against salt stress (claim-25), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 9 or its complementary sequence (claim-26), DNA hybridized with the DNA according to claim-26 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim-27), DNA-encoding proteins according to any one of the following (a) or (b): (a) a protein having the sequence of amino acids shown in Seq. ID No. 12, (b) a protein having a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 12, and having the activity of improving tolerance at least against salt stress (claim-28), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 11 or its

complementary sequence (claim 29), DNA hybridized with the DNA according to claim (29) under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim-30), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein having the sequence of amino acids shown in Seq. ID No. 14, (b) a protein having a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 14, and having the activity of improving tolerance at least against salt stress (claim-31), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 13 or its complementary sequence (claim 32), DNA hybridized with the DNA according to claim (32) under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim 33), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 16, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 16, and having the activity of improving tolerance at least against salt stress (claim-34), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 15 or its complementary sequence (claim-35), DNA hybridized with the DNA according to claim-35 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim-36), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 18, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 18, and having the activity of improving tolerance at least against salt stress (claim-37), DNA having part or whole of the sequence of bases shown in Seq. ID No. 17 or its complementary sequence (claim-38), DNA hybridized with the DNA according to Claim (38) under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim-39), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 20, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted,

substituted, or added in the sequence of amino acids shown in Seq. ID No. 20, and having the activity of improving tolerance at least against salt stress (claim 40), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 19 or its complementary sequence (claim 41), DNA hybridized with the DNA according to claim (41) under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim 42), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 22, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 22, and having the activity of improving tolerance at least against salt stress (claim 43), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 21 or its complementary sequence (claim 44), DNA hybridized with the DNA under stringent conditions according to claim (44), and encoding proteins having the activity of improving tolerance at least against salt stress (claim 45), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 24, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 24, and having activity of improving tolerance at least against salt stress (claim 46), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 23 or its complementary sequence (claim 47), DNA hybridized with the DNA according to Claim (47) under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim 48), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 26, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 26, and having the activity of improving tolerance at least against salt stress (claim 49), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 25 or its complementary sequence (claim 50), DNA hybridized with the DNA according to Claim (50) under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim

51), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 28, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 28, and having the activity of improving tolerance at least against salt stress (claim-52), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 27 or its complementary sequence (claim-53), DNA hybridized with the DNA according to claim (53) under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim-54), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 30, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in ID No. 30, and having the activity of improving tolerance at least against salt stress (claim-55), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 29 or its complementary sequence (claim-56), DNA hybridized with the DNA according to Claim-56 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim-57), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 32, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 32, and having the activity of improving tolerance at least against salt stress (claim-58), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 31 or its complementary sequence (claim-59), DNA hybridized with the DNA according to claim-59 under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim-60), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 34, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 34, and having the activity of improving tolerance at least against salt stress (claim-61), DNA comprising part or whole of the sequence of

bases shown in Seq. ID No. 33 or its complementary sequence (claim-62), DNA hybridized with the DNA according to claim (62) under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim-63), DNA encoding proteins according to any one of the following (a) or (b): (a) a protein comprising the sequence of amino acids shown in Seq. ID No. 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, or 64, (b) a protein comprising a sequence of amino acids wherein one or more of amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, or 64, and having the activity of improving tolerance at least against salt stress (claim-64), DNA comprising part or whole of the sequence of bases shown in Seq. ID No. 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61, or 63, or its complementary sequence (claim-65), and DNA hybridized with the DNA according to claim (65) under stringent conditions, and encoding proteins having the activity of improving tolerance at least against salt stress (claim-66).

The invention also relates to a method for improving environmental stress tolerance, wherein the DNA according to any one of claims (8) to (66) is used (claim-67), the method for improving the environmental stress tolerance according to claim-67, wherein the environmental stress is one or more of chemical substance stress, high temperature stress, low temperature stress, freezing stress, drought stress, ozone stress, ultraviolet stress, radiation stress, and/or osmotic pressure stress (claim-68), and the method for improving environmental stress tolerance according to claim-68, wherein the chemical substance stress is salt stress (claim-69).

The invention also relates to a protein comprising of the sequence of amino acids shown in Seq. ID No. 2 (claim-70), a protein having 70% or more of homology with the sequence of amino acids shown in Seq. ID No. 2, and having the activity of improving tolerance at least against salt stress (claim-71), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 2, and having the activity of improving tolerance at least against salt stress (claim-72), a protein comprising the sequence of amino acids shown in Seq. ID No. 4 (claim-73), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted,

or added in the sequence of amino acids shown in Seq. ID No. 4, and having the activity of improving tolerance at least against salt stress (claim-74), a protein comprising the sequence of amino acids shown in Seq. ID No. 6 (claim-75), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 6, and having the activity of improving tolerance at least against salt stress (claim-76), a protein comprising the sequence of amino acids shown in Seq. ID No. 8 (claim-77), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 8, and having the activity of improving tolerance at least against salt stress (claim-78), a protein comprising the sequence of amino acids shown in Seq. ID No. 10 (claim-79), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 10, and having the activity of improving tolerance at least against salt stress (claim-80), a protein comprising the sequence of amino acids shown in Seq. ID No. 12 (claim-81), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 12, and having the activity of improving tolerance at least against salt stress (claim-82), a protein comprising the sequence of amino acids shown in Seq. ID No. 14 (claim-83), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 14, and having the activity of improving tolerance at least against salt stress (claim-84), a protein comprising the sequence of amino acids shown in Seq. ID No. 16 (claim-85), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 16, and having the activity of improving tolerance at least against salt stress (claim-86), a protein comprising the sequence of amino acids shown in Seq. ID No. 18 (claim-87), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 18, and having the activity of improving tolerance at least against salt stress (claim-88), a protein comprising the sequence of amino acids shown in Seq. ID No. 20 (claim-89), a protein

comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 20, and having the activity of improving tolerance at least against salt stress (claim-90), a protein comprising the sequence of amino acids shown in Seq. ID No. 22 (claim-91), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 22, and having the activity of improving tolerance at least against salt stress (claim-92), a protein comprising the sequence of amino acids shown in Seq. ID No. 24 (claim-93), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 24, and having the activity of improving tolerance at least against salt stress (claim-94), a protein comprising the sequence of amino acids shown in Seq. ID No. 26 (claim-95), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 26, and having the activity of improving tolerance at least against salt stress (claim-96), a protein comprising the sequence of amino acids shown in Seq. ID No. 28 (claim-97), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 28, and having the activity of improving tolerance at least against salt stress (claim-98), a protein comprising the sequence of amino acids shown in Seq. ID No. 30 (claim-99), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 30, and having the activity of improving tolerance at least against salt stress (claim-100), a protein comprising the sequence of amino acids shown in Seq. ID No. 32 (claim-101), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 32, and having the activity of improving tolerance at least against salt stress (claim-102), a protein comprising the sequence of amino acids shown in Seq. ID No. 34 (claim-103), a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 34, and having the activity of improving tolerance at least

against salt stress (claim-104), a protein comprising the sequence of amino acids shown in Seq. ID No. 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, or 64 (claim-105), and a protein comprising a sequence of amino acids wherein one or more amino acids are deleted, substituted, or added in the sequence of amino acids shown in Seq. ID No. 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, or 64, and having the activity of improving tolerance at least against salt stress (claim-106).

The present invention also relates to an antibody specifically bound to the protein according to any one of claims (70) to (72) (claim-107), an antibody specifically bound to the protein according to any one of claims (73) to (104) (claim-108), an antibody specifically bound to the protein according to any one of claims (105) or (106) (claim-109), and the antibody according to any one of claims (107) to (109), wherein the antibody is a monoclonal antibody (claim-110).

The present invention also relates to a vector comprising the DNA encoding proteins having the activity of improving tolerance against environmental stresses according to any one of claims (8) to (12) (claim-111), a vector comprising the DNA according to any one of claims (13) to (15) (claim-112), a vector comprising the DNA according to any one of claims (16) to (63) (claim-113), and a vector comprising the DNA according to any one of claims (64) to (66) (claim-114).

The present invention also relates to a transformed cell obtained by introducing the vector according to any one of claims (111) to (114) (claim-115), a transformed cell according to claim (115), wherein the host cell is a plant cell (claim-116), and a method for producing proteins having the activity of improving environmental stress tolerance, wherein the transformed cells according to either of claims (115) or (116) is cultured, and recombinant proteins are collected from the transformed cells or the supernatant of the cultured liquid (claim-117).

The present invention also relates to a transgenic plant obtained by introducing the DNA according to any one of claims (8) to (12) encoding proteins having the activity of improving environmental stress tolerance, and by dividing, proliferating and redifferentiating the plant cell (claim-118), a transgenic plant obtained by introducing the DNA according to any one of claims (13) to (15) encoding proteins having the activity of improving environmental stress tolerance, and by dividing, proliferating and redifferentiating the plant cell (claim-119), a transgenic plant

obtained by introducing the DNA according to any one of claims (16) to (63) encoding proteins having the activity of improving environmental stress tolerance, and by dividing, proliferating and redifferentiating the plant cell (claim-120), a transgenic plant obtained by introducing the DNA according to any one of claims (64) to (66) encoding proteins having the activity of improving environmental stress tolerance, and by dividing, proliferating and redifferentiating the plant cell (claim-121), a transgenic plant obtained by introducing the vector according to any one of claims (111) to (114), and by dividing, proliferating and redifferentiating the plant cell (claim 122), the transgenic plant according to any one of claims (118) to (122), wherein the environmental stress is one or more of chemical substance stress, high temperature stress, low temperature stress, frenzying stress, drought stress, ozone stress, ultraviolet stress, radiation stress, and/or osmotic pressure stress (claim-123), the transgenic plant according to claim-123, wherein the chemical substance stress is salt stress (claim-124), and a material for breeding derived from the transgenic plant according to any one of claims (118) to (122) (claim-125).

Amend the paragraph beginning at page 18, line 15 as follows:

Fig. 9 shows a region considered as minimal functional region of mangl (mangl core), and the sequences of bases and amino acids of clones wherein mutants were introduced. The white letters in the sequences of bases and amino acids shows the mutated positions. Shown in the figure are the mangrin core (DNA) (SEQ ID NO: 67), mangrin core (protein) (SEQ ID NO: 68), C-52 (DNA) (SEQ ID NO: 69), C-52 (protein) (SEQ ID NO: 70), C-80 (DNA) (SEQ ID NO: 71), and C-80 (protein) (SEQ ID NO: 72).